

Amendment dated January 25, 2006

Reply to Office Action of October 6, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An energy recovering apparatus of a plasma display panel, comprising:
a first path for charging an inductor using energy from a source capacitor; and
a second path, being separated from the source capacitor, for supplying energy of the inductor to the plasma display panel, wherein the first path includes:

a first switching device connected between a second terminal of the source capacitor connected to a ground voltage source and a first terminal of the inductor; and
a second switching device connected between a second terminal of the inductor and the ground voltage source, wherein the first and second switching devices keep a turned-on state during a period when energy from the source capacitor is charged in the inductor through the first path, and shut off the first path in a state in which energy has been charged in the inductor to thereby derive an inverse voltage into the inductor.

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2. (Original) The energy recovering apparatus as claimed in claim 1, further comprising:

a third path for charging a voltage from a sustain voltage source into the panel;
a fourth path for recovering energy charged in the panel to charge the recovered energy, via the inductor, into the source capacitor; and
a fifth path for charging a voltage from a ground voltage source into the panel.

3. (Canceled)

4. (Canceled)

5. (Currently Amended) The energy recovering apparatus as claimed in claim 41, wherein the second path includes:

a third switching device connected between the second terminal of the inductor and the panel; and
a diode connected between a node positioned between the first terminal of the inductor and the first switching device and the ground voltage source to form a path for applying energy from the inductor to the panel.

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6. (Original) The energy recovering apparatus as claimed in claim 5, wherein the third switching device is turned on when the first and second switching devices are turned off, to thereby apply said inverse voltage derived into the inductor to the panel.

7. (Original) The energy recovering apparatus as claimed in claim 2, wherein the third path includes:

a fourth switching device connected between the sustain voltage source and the panel.

8. (Original) The energy recovering apparatus as claimed in claim 5, wherein the fourth path includes:

the first switching device and the third switching device.

9. (Original) The energy recovering apparatus as claimed in claim 8, wherein each of the second and fourth paths further includes:

a fifth switching device connected between the inductor and the third switching device.

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10. (Original) The energy recovering apparatus as claimed in claim 9, wherein each of the first to third switching device is connected, in parallel, with a first diode having a first bias direction, and the fifth switching device is connected, in parallel, with a second diode having a second direction which is contrary to the first bias direction.

11. (Original) The energy recovering apparatus as claimed in claim 10, wherein the fifth switching device becomes a turned-off at the second path while it becomes a turned-on state at the fourth path.

12. (Currently Amended) An energy recovering method for a plasma display panel, comprising the steps of:

(A) charging energy from a source capacitor into an inductor using a first path including by enabling a first switch coupled between the source capacitor and the inductor and by enabling a second switch coupled between the inductor and a prescribed potential; and

(B) applying energy of the inductor to the panel using a second path that is separated from the source capacitor and includes the inductor and the plasma display panel by disabling the first switch coupled between the source capacitor and the inductor and by disabling the second switch coupled between the inductor and the prescribed potential.

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13. (Currently Amended) The energy recovering method as claimed in claim 12, further comprising ~~the steps of:~~

(C) charging a voltage from a sustain voltage source into the panel using a third path including the sustain voltage source and the panel;

(D) recovering energy charged in the panel to charge the recovered energy into the source capacitor using a fourth path including the panel, the inductor and the source capacitor; and

(E) charging a voltage from the ground voltage source into the panel using a fifth path including the ground voltage source and the panel.

14. (Currently Amended) The energy recovering method as claimed in claim 12, wherein said (A)-step (A) includes:

charging energy from the source capacitor into the inductor through the first path; and

shutting off the first path in a state in which energy has been charged in the inductor to thereby derive an inverse voltage into the inductor.

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15. (Currently Amended) The energy recovering method as claimed in claim 14, wherein said (B)-step (B) includes:

charging said inverse voltage derived into the inductor to the panel through the second path.

16. (New) An energy recovering apparatus for a plasma display panel having a panel capacitance, comprising:

a first node for coupling to the panel capacitance;

a second node for coupling to a prescribed potential;

an inductor coupled to the first node and the second node;

a first switching circuit coupled to the second node;

a capacitor coupled to the first switching circuit and the prescribed potential; and

a second switching circuit coupled to the first node and to the prescribed potential, wherein

during a first prescribed period of time, the first and second switching circuits allow transfer of energy between the capacitor and the inductor through a first electrically conductive path, and

during a second prescribed period of time, the first and second switching circuits allow transfer of energy stored in the inductor to the first node through a second electrically conductive path which excludes the capacitor.

17. (New) The energy recovery apparatus of claim 16, further comprising:
 - a third node coupled to the panel capacitance;
 - a third switching circuit, coupled between the first node and the third node, allowing transfer of the energy stored in the inductor to the panel capacitance during the second prescribed period of time.
18. (New) The energy recovery apparatus of claim 17, further comprising:
 - a fourth switching circuit coupled to the third node and for coupling to a prescribed voltage source, wherein during a third prescribed period of time, the third switching circuit allows clamping of the panel capacitance to a voltage of the prescribed voltage source.
19. (New) The energy recovery apparatus of claim 18, wherein during a fourth prescribed period of time, the first and third switching circuits allow transfer of charges stored in the panel capacitance to the capacitor through the inductor, and the second and fourth switching

circuits prevent coupling of the panel capacitance to the prescribed potential and the prescribed voltage source.

20. (New) The energy recovery apparatus of claim 19, wherein during a fifth prescribed period of time, the second and third switching circuits allow clamping of the panel capacitance to the prescribed potential.

21. (New) The energy recovery apparatus of claim 20, further comprising a diode coupled to the second node and the prescribed potential.

22. (New) The energy recovery apparatus of claim 21, wherein each of the first, second, third and fourth switching circuits comprises a transistor, the transistor being one of a field effect transistor, an insulated gate bipolar transistor, a silicon controlled rectifier, a bipolar junction transistor, and high electron mobility transistor, and the prescribed potential is a ground potential.

23. (New) The energy recovery apparatus of claim 21, wherein each of the first, second and fourth switching circuits comprises a transistor and a diode connected in parallel, and the third switching circuit comprises a first transistor coupled in series to a second transistor,

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and a first diode coupled in parallel with the first transistor and a second diode coupled in parallel to the second transistor, the first diode allowing current flow which is opposite from the second diode, the transistors being one of field effect transistors, insulated gate bipolar transistors, a silicon controlled rectifiers, a bipolar junction transistors, and high electron mobility transistors, and the prescribed potential is a ground potential.